NASA
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas

Energy conscious

Deputy Director P.J. Weitz discusses the need for electrical conservation at JSC. Story on Page 3.

Eagle Award winners

White Sands team honored by National Space Club. Story on Page 4.

Space News Roundup

Vol. 29 | March 16, 1990 | No. 11

Culture survey results spotlight JSC strengths

Agencywide comparisons of the March 1989 culture survey results indicate that JSC is at or above the NASA average on 80% of the items in the survey. On many of the items, reflective of the health of our organization, JSC is the highest rated center," said Human Resources' Chris Parker.

These items include: overall satisfaction with the center, pride in working for NASA, loyalty to NASA and JSC, and the fact that people feel their coworkers strive to do their best. In addition, people expect to have a long career with NASA and are satisfied with their jobs and work units.

"Results also indicate," said Parker, "that the areas we focused on from the 1986 survey, communications, role clarity, and career development, showed substantial increases and were generally above the NASA mean in 1989.

"Not only does JSC compare very well with respect to other NASA centers," said Jack Lister, Director of Human Resources, "comparisons with other industry surveys were

Please see **SURVEY**, Page 4

To fly in May on STS-35

Shuttle trash compactor to serve as extended duration flight treasure

By Pam Alloway

When Fred Abolfathi and J.B. Thomas work on one of their many projects, a detailed test objective scheduled to fly on STS-35 in May, they don't have any problem finding material to test it out — they just reach for the nearest trash can.

Abolfathi, a Lockheed Engineering and Science Corp. project engineer, and Thomas, a NASA subsystems manager in the Man-Systems Division, have spent the past year working on a trash compactor for the Space Shuttle. They've crushed hundreds of pop cans, squished thousands of memos, mutilated pounds of flight food containers, and even thrown in a couple of cans full of cat food, just to test odor containment.

"So far we haven't had any trouble generating trash," Abolfathi said.

The experimental shuttle trash compactor is scheduled to fly May 9 on STS-35 for the first time as detailed test objective (DTO) 0634. The compactor will become an important part of shuttle hardware as NASA begins flying extended duration orbiter flights (EDO), said project managers. EDO missions mean more trash in a vehicle where stowage space already is extremely limited. The first 13 day EDO mission currently is scheduled in 1992. Plans call for the first 16 day EDO mission to occur in 1994.

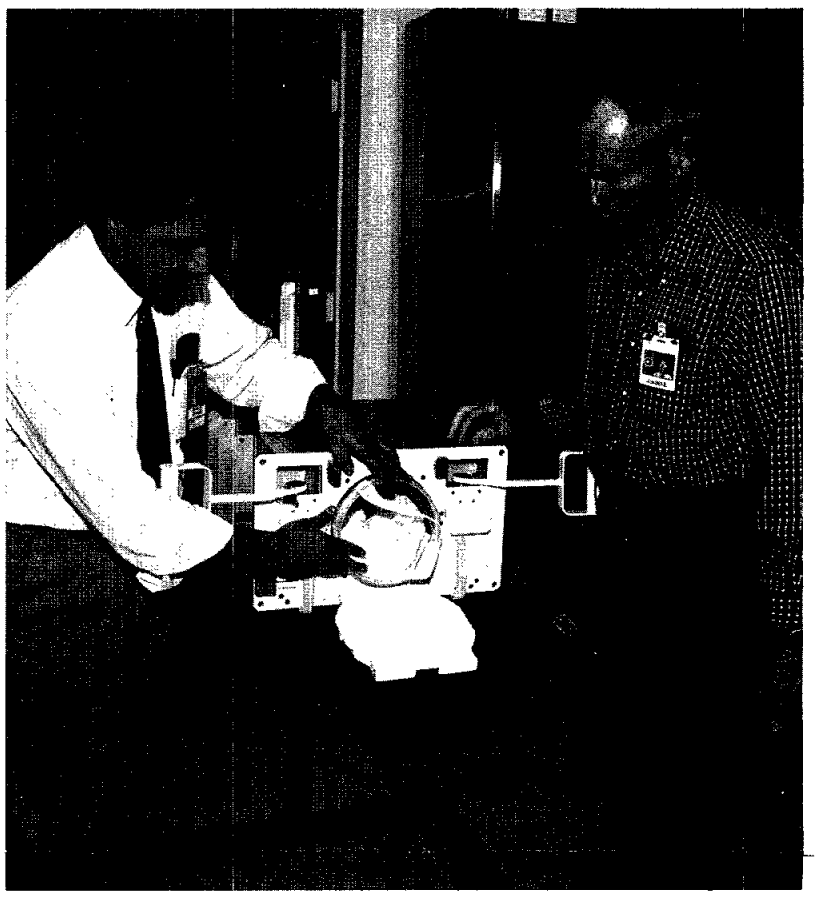
"The goal of the EDO Trash Compactor is to reduce the trash to a manageable volume for EDO missions," said Thomas. "Each crew member generates about one-half cubic foot of trash per day."

Current projections indicate about 56 cubic feet of trash will be generated on the first 16 day EDO flight and those working on this project would like to reduce that number to 14 cubic feet, said Abolfathi.

During Skylab missions there was room to store trash but such space will not be available on extended shuttle flights, said Thomas.

The 48-pound compactor fits in place of a middeck locker and is operated manually. Trash is placed

Please see **COMPACTOR**, Page 4



JSC Photo

COMPACT CONTAINMENT—Fred Abolfathi, a Lockheed Engineering and Science Corp. project engineer, and J.B. Thomas, a NASA subsystems manager in the Man-Systems Division, demonstrate the manually operated EDO Trash Compactor mechanism that is scheduled to fly as a Detailed Test Objective (DTO) on STS-35 in May.

Rollout to pad delayed for *Discovery*

By Kyle Herring

The rollout of the space shuttle, *Discovery* was delayed until 6:30 p.m. Thursday. The delay is due to a technical concern found on *Columbia* that secures a seal in the orbiter nose wheel. Engineeers checked out *Discovery*'s nose wheel thoroughly to determine if more work must be done on the nose wheel hardware.

STS-31
Hubble Space Telescope

Once the decision to roll out is made, *Discovery* will slowly make the 4.2 mile trip to the pad mated to its solid rocket boosters and external tank. HST is scheduled to arrive at the pad on March 26, where it will be transferred from the clean room on the Rotating Service Structure into the orbiter's payload bay.

Space Shuttle Program officials will meet March 30 and 31 for the routine flight readiness review out of which will come the target launch date for the STS-31 mission. All work has gone smoothly up to this point with about

Please see ***DISCOVERY***, Page 4

LDEF focus of Lunar and Planetary Conference briefing

With LDEF home, investigators are digging in, and members of a group looking at the impacts of debris and micrometeroids on the satellite talked about their early efforts Wednesday at the 21st Lunar and Planetary Science Conference. The annual conference held at the Gilruth Recreation Center ends today.

About a fourth of LDEF's surface is occupied by experiments dedicated to interplanetary dust and debris investigations, and a panel, the Meteroid and Debris Special Investigation Group, has been set up to study the subject, said Dr. Mike Zolensky of JSC's Planetary Science Branch.

The group will ensure that the full size range of dust and debris particle impacts is recorded, including their locations.

"Many impacts are being noticed on the satellite structure itself," Zolensky said. But the impacts are in a variety of materials, including the aluminum LDEF frame as well as steel, copper, gold, plastics and thermal materials, he added.

Samples of the the various materials are being collected by the group and all of the 57 experiment trays on LDEF are being examined for impacts as they are removed.

"We'll publish a catolog of all impacts over one-half millimeter in diameter plus a list of all the materials we're getting as quickly as we can," Zolensky said. "And they will be made available to the scientific community at large."

T.J. Stevenson, an LDEF special investigator from the University of Kent at Canterbury, England, elaborated on the value of information that can be derived from the LDEF impacts. A useful ratio may be determined between the number of impacts caused by man-made debris and those caused by natural space dust, Stevenson said.

Also, in the Multiple Foil Microabrasion Package experiment, results already have shown that particles disintegrated as they passed through several layers of foil, he said. The same disintegration concept has been studied as a possible method of shielding spacecraft from debris.

Herbert Zook, a scientist in JSC's Space Science Branch, said the gravity-stabilized attitude of LDEF during its five years in space may provide insight into separating micrometeroid impact craters from those made by debris. Due to LDEF's low orbit, most impacts on either end of the satellite should be due to meteroids only, Zook said.

From studying residue and the impact crater, scientists also may be able to distinguish micrometeroids that came from asteroids from those that were born from comets. Even some entire particles may be caught in LDEF, he added.

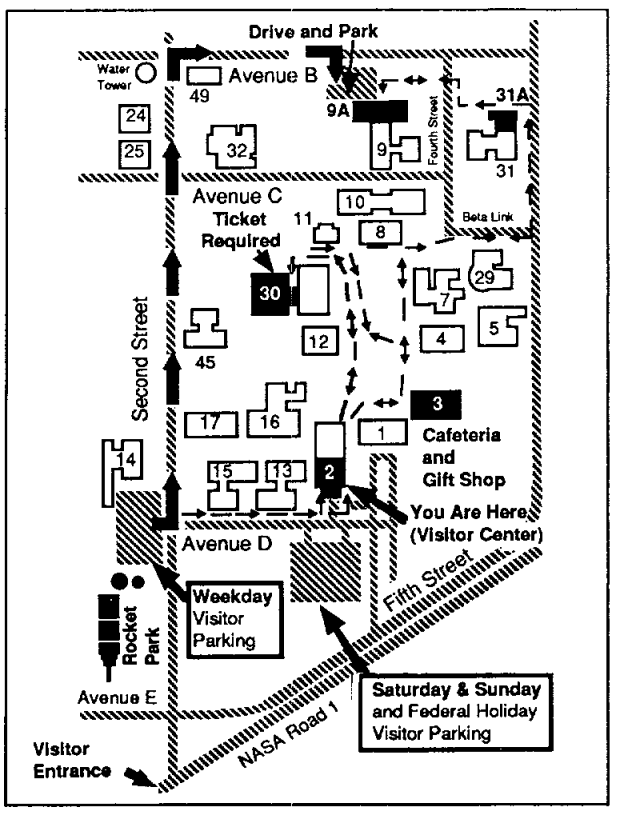
"We haven't found a piece of debris trapped on LDEF to analyze yet, but we're just getting started," Zook said. "We'll just have to wait awhile."

St. Pat's parade reroutes traffic

Employee and visitor traffic to JSC will be rerouted from the usual main gate entrance Saturday morning, March 17, because of the St. Patrick's Day parade. NASA Rd. 1 will be closed to all traffic from 9:30 a.m. to noon between K-Mart at I-45 and the American Host Hotel at Hospital Blvd. Security will therefore open the Space Center Blvd. gate from 8 a.m. to noon on Saturday to allow access to the center. After noon, the use of the main gate on NASA Rd. for all JSC traffic will resume.

Technology exhibit to arrive

A traveling showroom displaying technologies applicable to NASA's space propulsion requirements will be parked on the south side of Bldg. 2 from 9 a.m. to 4 p.m. March 23. The exhibit is open to the public.



New public visitor routes in effect; Bldg. 9A viewing area changes

The traditional self-guided public visitor routes at the center will change Tuesday, due to safety guidelines now in force with the onset of construction of the 9C addition to Bldgs. 9A and 9B.

The English language version of the new visitor brochures with the amended tour map will be available at the Bldg. 2 information desk. The brochure has also been translated into a Spanish language version, directed at a primarily Latin American audience. The Spanish brochure should be available within six to eight weeks, according to Boyd Mounce, technical monitor for Visitor Services in the Public Sevices Branch.

The route to the Bldg. 30 Mission Control briefings remains unchanged, and is highlighted in red on the brochure. The new circuitous route to Bldg. 9A is indicated in green, and will take visitors past the east end of Bldg. 31A, the Lunar Sample Bldg., to a new public entrance at the northwest corner of 9B, the building now housing the Space Station mock-up.

Bldg. 5, previously housing Skylab, has been eliminated from the list now that the trainer has been put into temporary storage awaiting permanent display in the new Visitors Center.

The public area formerly in 9A, which permitted visitors to view the Full Fuselage Trainer (FFT) and Crew Compartment Trainer (CCT) of the shuttle, as well as the Manipulator Development Facility (MDF) with its operating mechanical arm, will be closed because of the planned construction of 9C for the next 9 to 12 months.

"Visitors will now have about the same amount of viewing room on the west end of 9B as they had on the east end of 9A," says Mounce. "The difference will be that they will be viewing the Space Station mock-up instead of the shuttle trainers. They will also be able to get a good view of the mock-up of Space Station *Freedom*'s truss structure, if they stand in the southwest corner of the new public area," he said.

As before, Public Services information personnel will be stationed at the new 9B location at all times during public viewing hours, which remain 9 a.m. to 4 p.m. daily, except Christmas Day. A monitor in the viewing area

Please see **VISITOR**, Page 4

JSC

Dates & Data

Today

Houston Space Society—Steve Clifford, staff scientist at the Lunar and Planetary Institute and Republican congressional candidate, will speak on "Politics of the Space Program" at 7:30 p.m., March 16, in the Atlantic Room at the University of Houston. Call 639-4221 for more information.

AIAA Technical Symposium—The Houston section of the American Institute for Aeronautics and Astronautics will conduct its 15th Annual Technical Symposium May 24 at the University of Houston-Clear Lake. Abstracts of proposed papers should be submitted to Michael Laibe, RSOC/R16C, 600 Gemini, Houston, TX, 77058, by March 16. For details, call Laibe at 282-4573.

Artificial intelligence—A call for abstracts has been issued for an Artificial Intelligence and Advanced Automation Techniques for Fault Diagnosis and Recovery Workshop. Deadline for abstracts to be sent to Dennis Lawler, EF5, is March 16. The workshop will be June 18 at the Gilruth Rec Center. For more information, contact Lawler, x32037, or Christopher Marsh, 333-0984.

Cafeteria menu—Special: corned beef and cabbage, with boiled potatoes. Entrees: fried shrimp, baked fish, beef stroganoff. Soup: seafood gumbo. Vegetables: okra and tomatoes, buttered broccoli, carrots in cream sauce.

Monday

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: franks and sauerkraut, sweet and sour pork chop with fried rice, potato baked chicken. Soup: cream of potato. Vegetables: French beans, buttered squash, lima beans.

Tuesday

Cafeteria menu—Special: smothered steak with dressing. Entrees: beef stew, liver and onions, shrimp Creole. Soup: navy bean soup. Vegetables: buttered corn, rice, cabbage, peas.

Wednesday

Houston Space Business roundtable—The monthly business program will feature JSC Director Aaron Cohen speaking on the Human Exploration Initiative. Registration begins at 11:30 a.m. March 21 at the Nassau Bay Hilton. Tickets are $18 for members, $20 for non-members, and reservations are required. Call 486-5068 for information.

Robotics operations meeting—The South Texas Section of the Aerospace Technical Chapter will hold its monthly dinner meeting beginning at 6 p.m. March 21 at the Ramada Inn, 1303 Nasa Road 1. Graham O'Neil, Lockheed Engineering, will discuss robotic operation challenges for space station. Tickets are $10 if reserved by March 19, $12 after the deadline, and $8 for students; contact Dr. Sam Veerasamy at 333-7409 or 482-1596, or Edward Carter at 333-6791 or 334-2169 for information.

Astronomy seminar—The JSC Astronomy seminar meeting for March 21 will feature a videotape of Dr. B. Tully, University of Hawaii, discussing "Large Scale Structure of the Universe" from noon to 1 p.m., Bldg. 31 conference room. Contact Al Jackson, 483-3709, for information.

Cafeteria menu—Special: salmon croquette. Entrees: roast beef, baked perch, chicken pan pie. Soup: seafood gumbo. Vegetables: mustard greens, Italian green beans, sliced beets.

Thursday

Solar System Exploration Division seminar—"Late Breaking Results from LDEF" will be the topic discussed by Dr. Michael Zolensky, JSC Planetary Materials Branch, at 3:15 p.m., March 22, in Bldg. 31, Room 129. Contact Nadine Barlow, x35044, for information.

Women's history month program—"Struggles, Stories, and Songs of Our Foremothers," a program of narration, dramatization, slides and music about women who courageously work for justice and peace, will be held from 1:30-3:30 p.m., March 22 in Teague Auditorium. All employees are invited, and the 1990 National Women's History Month poster will be given to the first 100. Contact Freda Marks, x30606, for more information.

Cafeteria menu—Special: stuffed cabbage. Entrees: beef tacos, ham and lima beans. Soup: beef and barley. Vegetables: ranch beans, Brussels sprouts, cream style corn.

March 23

Cafeteria menu—Special: Salisbury steak. Entrees: fried shrimp, deviled crabs, ham steak. Soup: seafood gumbo. Vegetables: buttered carrots, green beans, June peas.

March 27

BAPCO meeting—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m. March 27 at the League City Bank and Trust. Contact Earl Rubenstein, x34807 or Ron Waldbillig, 337-5074, for information.

March 28

IEEE video conference—"Expert Systems: Integration with Databases and Real-Time Systems" will be discussed from 11 a.m.-2 p.m. March 28 in the Gilruth Recreation Center. Contact Andy Lindberg, x31474, before March 22 to register.

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays.

General Cinema (valid for one year): $3.75 each.

AMC Theater (valid until May 1991): $3.50 each.

Sea World (San Antonio, year long): adults, $17.25; children (3-11) $14.75.

NASA Night at Astroworld (April 6, 6 p.m.-midnight; park is closed to the public): the first 5,000 tickets $7.25, after 5,000 tickets are $9.20.

JSC

Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center and show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance. For more information, call x35789 or x30304.

Defensive driving—Course is offered from 8 a.m.-5 p.m., April 21 and May 19; cost is $15.

Weight Safety—Required course for those wishing to use the Rec Center weight room. The next classes will be from 8-9:30 March 22, April 4 and April 18.

Ballroom dance—Beginning, intermediate and advanced ballroom dancing. Classes begin May 3 and meet every Thursday for eight weeks. Beginning and advanced classes meet 7-8:15 p.m. Intermediate class meets 8:15-9:30 p.m. Cost is $20 per couple.

Low-impact aerobics and exercise—Each eight-week session runs twice a week from 5:15-6:15 p.m. Cost is $24.

Scuba—Pool and classroom sessions, plus open water dive. Class starts March 26 and meets for four weeks. Introductory session will meet at 5 p.m. March 26 in Rm. 222 at the Gilruth.

Tennis—Beginning tennis lessons, meets Mondays from 5:15-6:45 p.m. for six weeks, beginning March 12. Advanced beginner class will be offered Wednesdays beginning March 14.

Almost Anything Goes—Six teams of three men, three women are needed for JSC Picnic. Registration deadline is April 27. Cost is $10 per team, includes T-shirt.

Easter Softball Tournament—Men's C tournament will be April 7-8; limit 16 teams. Cost is $95 per team.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Sale: 60 acres, 3 mi. from Karnes City, TX, 50 mi. from San Antonio; 2-story house on 1.5 lots, trees. 783-9164.

Sale/Lease: 10 acres, 1/2 mi. W. of Hwy. 146 on FM 517, 40x60 barn, ponds, util., $99,000 or $250/mo., nego., owner fin. Trey, 280-4381 or 484-7834.

Sale: Seabrook 3-2-2, renov., 7% loan plus equity, $275/mo., owner fin., $48,000, no qual., $5,000 down. 474-2857 or 859-4574.

Sale: Lg. lots, waterfront, near NASA, mid $30's, can fin. Don, x38039 or 333-3313.

Sale: Kirkwood So., 2-story, 4-2.5-2, FPL, study, ex. cond., cul-de-sac, $79,500. 488-5210.

Sale/Lease: Nassau Bay townhouse, 4-2-2, over 2,000 sq. ft., 2-story den, $109,900 or $1,095. Jerry, x38922 or 488-5307.

Rent: Lake Livingston, waterfront, 3-2, CA/H, FPL, new cond., furn., wknd or wk. 482-1582.

CL/Ellington: 4-2-2 on cul-de-sac, trees, 2,000 sq. ft., 2-story, $90's. 333-6535 or 481-6453.

Sale: Big Bend area, 160 acres, $120/acre, CFD 20% down, 9% for 7 yrs. 337-4051.

Rent: Ski Heavenly Valley, Lake Tahoe, 2 BR condo, $350 for wk 3/26-4/2. Tom, x38298 or 488-4089.

Sale: Bay house on Caranchua Bay, 12 mi. W. of Palacios, 900 sq. ft. on 100'x125' lot, furn., 2 wndw. AC, 5 dbl. beds, $40,000. (409) 543-2052.

Lease: 4-2-2 in El Lago, all appli., avail. May 1, $800/mo. 326-6811 or 488-8611.

Sale: Meadowgreen, 3-2-2, FPL, 2,000 sq. ft., 8.5 assum. FHA loan, $25,000 equity, no app. or closing costs, $116,000. 480-3909.

Sale: 9.64 acres, Santa Fe, 496' frontage x 890' deep, $55,000. Fred, (409) 474-6311 or (409) 925-4743.

Sale: CLC, Camino So., 3-2-2, ex. cond., $57,900. 488-2735.

Lease: Web./Ellington, 2-1, W/D avail., $425/mo. Dave, x38156 or 486-5181 or Eric, x38420.

Trade: Custom canyon view, 4 BR, W. of Austin, prefer 5 yr. old, open plan w/in 20 min. of JSC. 471-8795 or 333-6083.

Sale: Sycamore Valley/Ellington, 2-story, 4-2-2 on cul-de-sac, $86,500 for new conven. loan until April 15 only. 333-6535 or 481-6453.

Lease: Friendswood/Heritage Park, 3-2-2, 1,600 sq. ft., $750/mo., no pets, no smokers. 483-7137 or 280-9441.

Cars & Trucks

'84 Cadillac Deville, sedan, 1 owner, low mi., $5,580. Mike, 333-2335.

'88 Toyota Corolla, 4-dr., ex. cond. 282-3215 or 280-9647.

'84 Dodge Daytona, turbo, 5-spd., 82K mi., runs well, $2,450. 282-6236 or 488-7999.

'80 elec. Comuta-Car, 40 mi. range, 38mph cruising, lic. and insp., on-board charger, $1,800. 532-4784.

'84 GMA Sierra Classic PU, loaded, 68K, $4,850; '79 Seville, 51K, $3,500. Don, x38039 or 333-3313.

'88 Toyota Corolla GTS, 2-dr. coupe, 19K mi., loaded, $10,500. 282-2849 or 992-1372.

'79 Chev. Caprice, V-8, 70K mi., 4-dr., PS, PB, good cond., $2,200, OBO. 280-2028 or 488-8919.

'83 Jeep CJ-7 Renegade, straight six, low mi., ex. cond., $4,900. Brian, 480-5430.

'79 280 ZX, auto., good cond., $2,300, nego. Bobby, 280-8912 or 643-1577.

'83 Porsche 944, 5-spd., AM/FM/cass., ex. cond., $8,950. 464-8694.

'65 Olds Starfire sport coupe, good cond., $2,900, OBO. Tom, x38298 or 488-4089.

'85 Toyota MRZ, loaded, 5-spd., ex. cond., 54k mi., $6,500, OBO. Cindy, 779-4515 or Darwin, x32142.

'83 Citation, good cond., eng. needs head gasket, $2,650. 332-5065.

'81 Ford Mustang, 3-dr., man. trans., T-tops, AM/FM cass., $2,500, nego. Matt, 332-8288.

'81 Datsun 280 ZX turbo, T-tops, auto., AM/FM/cass., ex. cond., $3,000. 283-4171 or 486-8574.

'82 GMC van, good cond., 305 auto., orig. owner, $3,900. Dave, 283-5823 or 332-4775.

'70 Chev. Blazer, 350, auto., AC, 4x4, good cond., $2,600. Tim, 483-8843 or 332-6153.

'75 Lincoln Towncar, mech. rest., $995. 283-4402 or 480-6528.

'81 Chev. Caprice, diesel, one owner, AM/FM, 4-dr., $1,175 cash. Hammack, 280-5159 or 326-2986.

'88 Hyundai Excel SE, 23k mi., 5-spd., $500 down, take up payments. 488-8198.

'80 Pontiac Phoenix, AC, auto., good cond., needs trans wk., $950. 483-0092 or 481-3637.

'79 Cutlass Supreme Brougham, V-8, 2-dr., ex. cond., $1,895, OBO. 280-8796.

'85 Mutsubishi Cordia L, 5-spd., loaded, 83K mi., ex. cond., $3,295. x36091 or 333-5326.

'88 Hyundai Excel GL, 5-spd., 4 dr. sedan, warr., ex. cond., $6,000, OBO. Becky, x31420 or 488-0556.

Cycles

Yamaha 360 MX, ex. cond., $800. x34094 or 488-6326.

'81 Suzuki 850cc, low mi., ex. cond., $1,400, helmets. Patrick, x32635 or 488-1079.

'79 KZ 650, low mi., good cond., $700, helmets extra. 480-7515.

'78 Kawasaki KZ 650, less than 7K mi., w/helmet. Steve, x35806 or 333-4222.

'85 900cc Kawasaki Ninja, 1,292 mi., orig. owner, $2,400. 332-2475.

'69 BSA Starfire 250cc single and '71 Ossa Pioneer 250, both parts bikes, BO. 483-0093 or 472-5650.

'85 Honda Elite scooter, low mi., ex. cond., $500; '85 Honda night hawk, $1,000. Amy or Patrick, 488-1988.

Boats & Planes

Surfboard, 6'4" thruster w/leash, astrodeck, $75. Billy, x31339 or 534-4780.

Surfboard, 5'8" twinfin, ex. cond., $150. Richard, 483-0415 or 480-0524.

14' Glassmagic skiboat, 80hp Merc., galv. trlr., skis, ex. cond., 38mph, $1,595. 83-5180 or 326-3706.

'85 Ozark 16' bass boat, 75hp Merc. thruster trolling motor, LCR, trlr., ex. cond., $4,800. 474-9566.

'81 Honda sailboat, hunter 22, 7.5 outbd., '85 roller jib, sleeps 4, good cond. 488-1313.

13' AMF board sailboat, $200, x30838 or 333-2769.

14' Jon boat w/9.5hp motor, trlr., $700. 482-4077.

Johnson otbd., 40hp, short shaft, man. start and controls, ex. cond., $1,500. Wood, x39247.

14' day sailer, main, jib, trlr., 20' alum. mast, $500, OBO. (409) 945-8411.

Audiovisual & Computers

TI-994A computer w/expan. box, ext. mem., floppy disk, disk manager, ext. basic, TI writer, BO. Mark, x31997 or 334-1474.

Atari 1040 ST computer w/SC 1224 color monitor, mouse, joystick, 3.5" 720K disc drive, 5 1/4" 360K disc drive, $900, OBO. Jody, 282-3155 extr. 3183 or 482-2941.

Car ster. spkrs., (2) 80 watt Sony w/fac. spkr. boxes, new, $75/pr. Ray, x36728 or 332-2931.

Commodore 64K, 1541 disk drive, Star printer, modem, $350. 554-2470.

IBM XT computer, 10 meg hard disk, $950 or $1,450 w/Intel inboard 386 (1 meg). 483-0092 or 481-3637.

IBM Monochrome monitor w/video card, IBM tilt/swivel stand, $60; Casio SF-3000 digital diary, $25. 484-6432.

Household

White/mushroom sofa, loveseat, $175. 480-2444.

Rattan glass top dinette w/4 chairs, was $900, now $250. Eileen, x38604.

New Mits. TV and VCR w/remote, BR suite, dressers, sofa, chair, exer. equip., cookware. 470-8881.

Sofa w/pullout bed, matching chair, blue/brn./beige striped, good cond., $300. 283-5657.

Litton microwave, good cond., $50; gold couch, loveseat, $300. 486-6726.

Solid mahogany desk, good cond., $150; indus. qual. metal util. table, $50. 474-7312 or 333-6883.

Kingsz. wtrbd., ex. cond., hdbd., base w/drwrs., split-semi-motionless matt. w/dual htrs., dresser w/hutch, 2 end tables, $600. 471-4100.

Musical Instruments

Organ, Yamaha console, 2 keyboard, rhythm sect., $500. 480-2444.

Upright piano, ex. cond., $400. Glenn, 333-4743 or 660-9526.

'86 Yamaha MEIO electone stand-up keybd. w/built-in KAIO amp, bench, ex. cond., $1,500. 559-2325 or 483-8691.

Fender Amer. Stratocaster and concert amp, ex. cond., $650/both; Yamaha GEP guitar effects proc. w/99 effect, $350. Ed, 326-1179.

Photographic

Minolta MD 50mm f1.7 cam. lens, new, $35; Nikon AF 50mm f1.8 Nikkor auto. focus cam. lens, $40. 464-8694.

Polaroid mini portrait cam., Model 251, uses Polaroid 545 film, takes 1/2 pic. simul., $150, OBO. Michael, x38169.

Pets & Livestock

Baby cockatiels, 3 wks. old. Linda, 484-7834.

Free tan Lab/Shepherd, 4 yrs. old, spayed, pref. home w/adults. 474-4734.

Yorkie male, AKC reg. 488-8198.

Wanted

Want longboard style surfboard, 8 or 9' long. Billy, x31339 or 534-4780.

Want non-smoking fem. roommate to share 2-2 Chatham Village apt., $287/mo. plus 1/2 util., W/D. Alison, x34314 or 332-0298.

Want lawn mower in need of repair; 3T condensing AC unit. 944-9152.

Want Atari 5200 game cart. Daryl, 483-5362.

Want roommate to share 3 BR house in LC, avail. June, $375 plus 1/2 util. Mike, x31027 or 488-8636.

Want Starwars spaceships, toys, fig., books, trains (elec., windup or lead). Ron, 482-1385.

Want to trade concert/church elec. organ for 30' plus cabin cruiser. 337-4051.

Want people to van pool from NW Houston. Wendell, x36182 or Ram, 333-6490.

Want donations of any conval. care equip. Garland Hector, 488-0217.

Want cheap working wash. mach. Edward, 333-3538 or 482-6050.

Want rocks for garden, any sz., will pick up. Dave, x38885 or 488-0048.

Want refrig., tricycles, rec./tape players, kitchen items, etc. for JSC Child Care Center. Mary Allen, x33087.

Want amateur musicians for gospel, bluegrass, folk music, fiddler especially. Jim, 283-4402 or 480-6528.

Want roommate to share 2 BR house off Egret Bay, no smoking, $210/mo. plus 1/2 util. Rick, x36042 or 332-7695.

Miscellaneous

Amber Sharon Cabbage Rose dep. glass, ex. cond., 42 pcs., $950 or by pc. Alison, x34314 or 332-0298.

Priv. coin collec., sell at 75% of book value, $300. Mike, 333-2335.

Bag Boy golf cart, $25; 26" ladies bike, $45. 944-9152.

Twenty pound gas clothes dryer, $50. x34094 or 488-6326.

Wheelchair, ex. cond., $150. Janice, x33013 or 337-3808.

Full sz. Amana microwave, $100; wall phone w/rev. chalk/peg board, $50; 68"x48" mirror, $50. Steve, x35450 or 480-1658.

Books on cass., Day of the Cheetah, The First Deadly Sin, Tracks, $7/ea. Ronnie, x32539.

Ladies Bulova watch, $50; Kodak Inst. cam., $5. Stacey, x32649 or 480-9793.

Bieffe motorcycle helmet, $25. 337-3122.

Ariens riding mower, 30" cut, 8hp, 4 cyl. Briggs & Stratton, 5 yrs. old, ex. cond., $525. x35096 or 488-2540.

Early Am. dining table w/2 leaves, 4 chairs, china cab., $500; Jenny Lind crib w/matt., new, $75. Bill, 554-4781.

Dilly galv. trlr., $425; 2 swivel boat seats, $40/both; OMC 6 gal. gas tank, $20. Andy, 333-6671 or 332-9105.

Med. brn. carpet, 30 plus sq. yds; gas wtr. htr., 40 gal., BO. Bob, 482-5984.

Ergometer exer. bike, like new, $75. Doug, x32860 or 486-7412.

Graco high chair, $30; Cosco walker, $25. Youm Nguyen, 483-2142.

Wedding gown, white, Queen Anne neckline, sz. 5/6, $250. Sue, x33938 or 944-1994.

Reloading press, RCBS Rockchucker II, primer catcher, priming arm, $50. 335-3408 or 486-4369.

Running boards for '87 Plymouth Voyager, $100; wire wheel covers for same, $80/ea.; Haitian cotton sofa, $100. Stan, x34057.

Sears tent, 6mm w/tote bags, ex. cond., $125; 2 Coleman stoves, $10/ea. 332-5065.

Baby clothes, blankets, etc., sz. 0-12 yr., boys tod.-7 yr., ex. cond; sofa, chair, trad., beige w/brn., blue flowers, ex. cond., $200. 488-6521.

Men's golf clubs, 3,5,7,9 irons, 1,3 wood, putter, bag, ex. cond., $95. Sheryl, 333-4743.

Lawn mower, edger, 20" pwr. mower, 1 yr. old, ex. cond., also gas edger, BO. Ray, x33954 or 422-0502.

Riding lawn mower, Gilson, 11hp Briggs Ind. eng., elec. start, rear bagger, $750, OBO; Sears wgt. bench w/misc. wgts., $75. Don, x39237 or 331-4059.

Room AC, Sanyo rotary cool M/N SA 91 9,000 BTU, BO. Dave, x37176 or 554-2487.

Garden tiller, 5hp Wards, rear tine, good cond., $300; sev. sheets of 8' tin. 334-1883.

'72 Dodge camper, sleeps 4-6, $1,995. 333-3431.

Pool table, access., $200. Ted, 326-1278 or 861-3016.

Brass oriental noodle serv., $125; carv. wood floor lamp, $100; footstool, $8; Antique mantel clock, $150; dec. items; Royal elec. typewriter, $90; Singer elec. sewing mach., $60; wall barometer, $25. 488-5564.

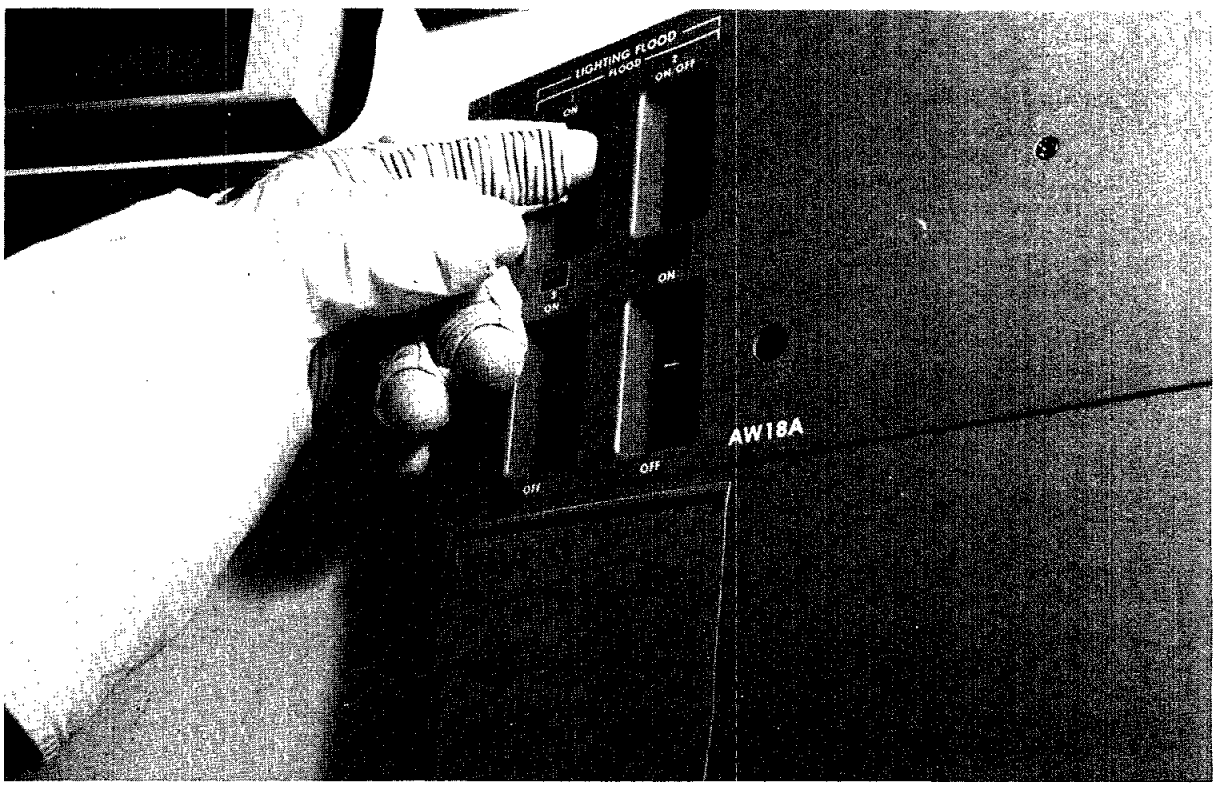
Sears wgt. set, $50; RCA video disc player, $50; Micronta, 12-volt DC reg. pwr. supply, $15. 484-6432.

Household wtr. filter sys., 5,000 gal., 3-yr. warr., $99. Kathleen, 333-7075 or 480-1024.

Super twin wtrbd., good cond., htr., bumper pads, $75; wgts. and bench, $75. Amy or Patrick, 488-1988.

Antiques: Wheelchair, quilts and tops, iron bed, sewing mach., walking plow, 1847 Wm. Rogers Silverplate, 56 pcs., plus 7 extra pcs. 783-9164.

CONSERVING ENERGY



JSC's deputy director answers questions about cutting electricity waste

(Editor's note: Although JSC received an overall 24 percent funding increase for Fiscal Year 1990, JSC's "household" budget grew by only 5.8 percent. To help stretch that money when JSC's programs are expanding, center management is asking all employees to help conserve in many ways. Space News Roundup asked JSC Deputy Director P.J. Weitz about the situation and solutions.)

Roundup: Employees have been noticing some energy saving measures at the center. Are we in some sort of crisis?

Weitz: There's no shortage of energy that we're worried about like there was in the mid-70s crisis. However, we do have a serious budget problem that won't allow us to pay for all the power we'd like to have. There also are very real environmental concerns that go along with any type of power usage.

Roundup: Why are we so concerned about saving energy when the newspapers say next year's budget includes such big increases for us?

Weitz: We hope there will be a significant increase in our budget next year, however, that money will be earmarked for particular programs (such as space station) as well as for certain other activities. Congress gives us our money in different "pots." You are probably most familiar with the Research and Development funds used to pay for all R&D activities such as building orbiters, space stations, operating missions etc. The budget for R&D activities is the one you've been reading about with its big increases.

Another important part of the budget is referred to as the Research and Program Management budget. I refer to it as JSC's "household" budget. R&PM pays for mowing the grass, the light bills, telephone bills, painting and cleanup activities. The R&PM portion of the budget is about 12% the size of the R&D portion and has not been significantly increased in the last few years.

Roundup: Aren't we already doing things to save money in this area?

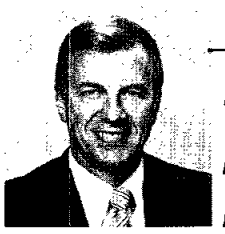
Weitz: Yes. You may have noticed some cost cutting measures such as reduced levels of office supplies, deferred building maintenance, and air conditioning in buildings being turned off earlier than usual. I am concerned that further efforts will significantly reduce the quality of our work place. I firmly believe that having a pleasant place to work is important to our overall efficiency and productivity.

Roundup: Energy conservation is important, but if enough energy is available, why don't we just ask for more money to pay for it instead of instituting all these cutbacks?

Weitz: First, we are not going to get sufficient increases in the R&PM budget in the near future. Secondly, we are adding new facilities to prepare for the space station era and other advanced programs. Increases we obtain will be more than absorbed by these new requirements. We are going to have to make our money stretch farther, do more with less. We have an ongoing responsibility to get the most efficiency from our operations whether it is flying shuttles or operating the site. This means reducing waste or unnecessary usage of every resource we have.

Additionally, we have a very important responsibility to the environment. We need to make every effort to conserve the Earth's resources and only use what is truly necessary. The recent paper recycling project was begun as a response to astronaut observations of the shrinking hardwood forests in South America. We undertook this endeavor realizing we should set an example for others to follow all the while hoping to make it at least a break even cost proposal. Fortunately, because of enthusiasm and support for this project, it is going even better than we had anticipated and now makes ecological and economic sense. We need to apply this same enthusiasm to reducing our consumption of electricity and other energy sources.

Roundup: Why can't we make cuts in other areas of the budget besides the "energy" portion?



Personal Thoughts

Like many of you, I consider JSC my second home. I spend more than a third of my total day at this center. Yet for many years, I haven't taken the same responsibilities for my actions at work as I have at home. You see, at home I control the household budget. I decide what I will spend money on. Each day when I leave for work I turn off the lights and turn up the thermostat before I lock the door. The money I save by doing this allows me to do some landscaping, painting and cleaning in order to keep my house looking nice.

It works much the same way here at JSC. The Center Operations Directorate controls our "household" budget. It allocates funds for our utility bills and phone bills, while trying to save some for landscaping, painting and cleaning. There is one big difference, though. They don't control the usage at JSC. We all do. Each dollar I waste on unnecessary energy usage could have been used for landscaping, painting or other maintenance.

Too often we get this urge to treat the "government" as some sort of mystical entity. I've often heard people talk about government waste and government overspending. I used to shrug it off; then one day I came to realize that when they said the "government" wastes money what they really meant was I waste my tax money. That's when I became real conscious of turning off the lights and the PC in my own office.

PJ Weitz

Weitz: We have. However, by law, certain activities must be paid for in R&PM dollars. The only other significant activities that are paid for by R&PM are personnel costs and travel. I am fully committed to staffing this center to approved levels and feel that the travel budget is at a critical level already. We've got new programs coming and we have to be prepared to support these with people and travel. That also means that we have to try to conserve our travel budget. One way we can do that is to use JSC's video teleconferencing rooms. Video teleconferencing may use some energy, but it is still much cheaper than travel and it wastes less time.

Roundup: What is the potential for savings?

Weitz: JSC's total utility bill is around $9 million dollars per year. Of this, over $7.1 million is spent on electricity alone. A 10% reduction in electrical consumption saves $710,000. That may seem insignificant to those folks who are used to working with much bigger budgets, but it is a significant number for the relatively small R&PM budget.

Turning off your personal computer in the afternoon may not seem like a big saver when you consider the electricity cost is only about 2 or 3 cents per hour. But PC's give off heat and it takes more air conditioning to counter this heat. Pennies make dollars and dollars make budgets. We counted the PC's that were left on one night in Building 1 out of curiosity. Over 300 PC's were left running. Conservative estimates show that this could cost us some $9,000 per year. If the rest of the center is doing this then there is a potential for annual savings of around $35,000 in this area alone. The same is true for the lights we use.

The point is, a lot of times it's the little costs that add up to hurt you. It just takes a little extra effort to turn off that PC or your lights in the evening. The accumulated savings can really add up. You don't use your PC any less, you just get rid of the unnecessary costs. Individual efforts are what is important here.

Roundup: What happens if we can't save enough money? Will Congress recognize our problem and give us enough money next year?

Weitz: This is not a short term problem. If we can't meet our budget guidelines through conserving our "transparent" resources such as electricity, then the cuts will come from areas that are much more visible. We have already slashed the budgets that keep our site operating efficiently through preventive maintenance. Keeping our center looking nice requires building and roads maintenance, landscaping and cleanup activities to name a few. These will have to take significant further cuts. Our Culture Survey showed that a pleasant working environment is important to employee productivity and morale. I'm proud of the way our center looks and would like to keep it that way.

Roundup: Can employees contribute ideas about how to save more money? Where should they send their ideas?

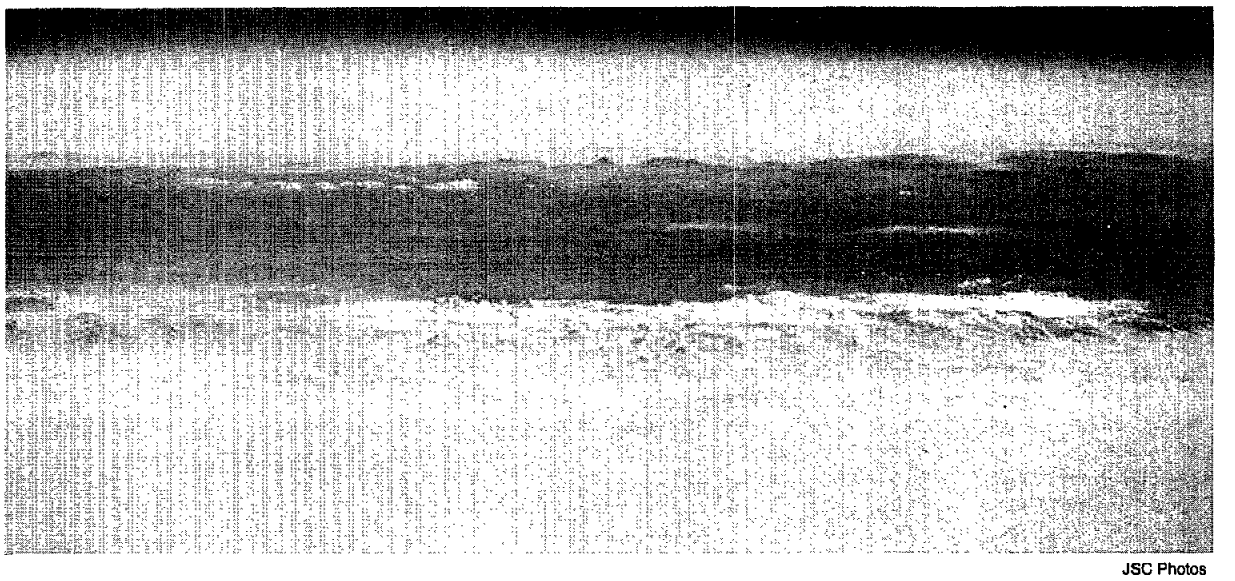
Weitz: Send your suggestions to my office. I would like innovative ideas that are do-able and feasible. Please send your ideas to Mail Code AB/Energy. You can use the current suggestion form (Number 624) for ease. Or better yet, write it down on the back of a piece of paper you were going to throw away. Send it anonomously, or include your name, mail code and telephone number so we can contact you for further information about the suggestion. I will review these with the appropriate people so that we can implement them quickly.

Roundup: Where does all this lead? Do we turn off the air conditioning in the Mission Control Center?

Weitz: We have a mission to fulfill. We cannot compromise that mission for any reason. This means some lights have to be left on, some computers must run 24 hours a day.

Roundup: What is the most important thing for the average employee to keep in mind when it comes to energy conservation?

Weitz: I ask that everyone be energy conscious in everything they do. Be aware of lights left on, equipment left running, unnecessary paper waste. JSC has long been recognized as one of the nation's leaders in high technology. I would like us to also be recognized as a national leader in an energy efficient, ecologically responsible place to work.



JSC Photos

CONSERVATION AWARENESS—(left) The Auxiliary Chiller Facility, Bldg. 28, is now under construction to allow JSC to meet peak summer cooling demands with improved energy efficiency. (right) The STS-26 cameras capture a smoke cloud covering much of the Amazon basin, the product of deforestation.

Compactor reduces size of shuttle trash by one-fourth

(Continued from Page 1)
inside a polypropylene bag which, when full, is placed inside the chamber of the compactor. One bag holds a volume equivalent to one-half cubic foot. A metal compactor door is closed securing the bag inside the chamber. A crew member then uses handles on either side of the compactor in a garden shear-type movement to engage gears which push a piston from the back of the chamber to the front, compressing the trash to a volume four times smaller. The piston compresses the trash using a force of about 60 pounds per square inch.

After the piston is moved as far forward as it was designed to go, the crew member retracts it, opens the compactor door, and pulls a strap to remove the bag from the chamber. The bag has a lid which houses a charcoal filter to contain odors, fluids and bacteria.

A one way air valve in the lid allows air out of the bag, relieving pressure during compaction. Next, the entire package is placed inside the orbiter trash stowage compartment. The bags fit through an eight inch diameter hole in the middeck floor. This compartment, known as Volume F, normally is used for wet trash stowage.

Operating the EDO Trash Compactor could provide a type of exercise for the crew, Thomas said.

About 10 years ago Johnson Engineering Corp. in Boulder, Colo. began working on a concept for an orbiter trash compactor that could be developed commercially for recreational vehicles. Using that experience, the company bid on a contract in July 1989 to design a shuttle trash compactor.

The design has been tested and certified using a variety of items, including: food, water, flight trash, plastic and metal food containers, and teleprinter pages.

The current shuttle rehydratable food package, which does not crush well in the compactor, is being redesigned for EDO missions, Abolfathi said.

"The DTO is flying as a proof of concept for the compactor," said Abolfathi. "We'll prove the concept will work and results will be used to build two flight units."

During STS-35, crew members will experiment with various types of lids and bags, Abolfathi said. Thirty bags and lids will accompany the compactor into space.

The hardware is scheduled to be shipped to KSC March 19 to support the Crew Equipment Interface Test), said Hamid Tabibian, Man-System's Systems Development Section manager.

"We've always been interested in designing a trash compactor for the shuttle but we just couldn't justify flying it until extended duration flights began coming along," Tabibian said. "EDO missions will last up to 16 days and can have as many as seven people. The trash compactor will become essential for those types of missions."

White Sands team honored by National Space Club

By James Hartsfield

A five-member team from the White Sands Test Facility (WSTF) will be honored today by the National Space Club for their work in analyzing possible fire and explosion hazards in the U.S. space program.

WSTF's Hazards Assessment Team was selected as the 1990 recipient of the space club's annual Eagle Manned Mission Success Award. The honorees include Frank Benz, chairman of the team; Joel Stoltzfus, an expert in metals combustion; Mike Plaster of Lockheed Engineering and Sciences Co. (LESC), a specialist in physics and explosion technology; Howard Gabel of LESC, a specialist in metallurgy; and Ralph Tapphorn of LESC, an expert in electronic and analytical instrumentation.

All members of the team work in the WSTF Laboratories Office and will be presented the award at the Goddard Memorial Dinner in Washington D.C. this evening. The honor includes a $2,000 stipend.

The Hazards Assessment Team came together following the Challenger accident, and has provided quick investigations of all types of possible dangers and incidents, providing answers and recommendations within days after a request is put in.

"Due to their diligence, they've contributed significantly to the safety of manned space flight," said Dave Pippen, chief of WSTF's Laboratories Office. "We needed a group of experts with all the various skills that are required for these types of investigations. Their job has been outstanding, and this award is really a fantastic compliment to their work."

Included in their work have been investigations of the Challenger accident; the Titan 34-D explosion, a Space Shuttle main engine (SSME) turbopump fire at Stennis Space Center; assessing explosion risks involved with flight readiness firings and on-pad SSME shutdowns; providing input to RTG safety requirements; and assisting in modifications to the SSME oxygen flow control valves, among other studies. The team's work often has been a supplement to an already heavy work load of individual members, resulting in extensive after-duty work. The team members have been supported as well by many additional WSTF employees.

The Eagle Manned Mission Success Award is presented annually by the National Space Club to persons who have contributed to the success of manned space flights by limiting or eliminating risks and hazards. The award was established in 1984 through a gift to the space club from James W. Barrett in honor of the heroism and achievements of the STS-51A crew in recovering two failed satellites.

NASA Photo

TEAM HONORED—The White Sands Test Facility Hazards Assessment Team, from left, Dr. Ralph Tapphorn, Howard Gabel, Frank Benz, Mike Plaster and Joel Stoltzfus, will be presented the 1990 Eagle Manned Mission Success Award by the National Space Club in honor of the team's work in reducing the risks associated with manned space flight.

Visitor viewing area changes in 9A

(Continued from Page 1)
will run astronaut training footage for visitors, and several displays will be available for viewing.

"We plan to have the eight foot long, 1/15 scale orbiter there to take a look at, since the shuttle trainers won't be in clear view," Mounce said.

Lupita Armandariz, Hispanic Employment Program Manager in the Equal Opportunities Programs Office, collaborated with Public Services' Bonnie Scurlock and Mounce in the brochure revision project by translating the text into Spanish in her spare time.

Mounce says that JSC accommodated 895,533 visitors in 1989, and printed about one million visitors guide brochures. Current monthly attendance figures for 1990 are running 2-3,000 ahead of last year's monthly tabulations.

Discovery rollout to pad delayed

(Continued from Page 1)
three contingency days remaining in the flow leading toward the April 12 launch date.

Prior to rollout to the launch pad, workers completed the Shuttle interface test and powered the vehicle down for removal of access platforms in preparation for yesterday's move.

The Terminal Countdown Demonstration Test (TCDT) is currently scheduled for Wednesday and Thursday. This is an exercise which allows for a complete dry run countdown with the flight crew, flight control team and launch team.

Crew Commander Loren Shriver, Pilot Charlie Bolden and Mission Specialists Steve Hawley, Bruce McCandless and Kathy Sullivan will travel to KSC in NASA T-38 training aircraft for the test.

Also on *Discovery*, the T-0 umbilical interface leak checks were completed this week while stray voltage checks, external tank tumble valve checks, and SRB thrust vector control flight readiness tests were completed.

At the pad, work to change out the GOX seal on the vent arm was completed and two waves of liquid oxygen were delivered for replenishment operations.

The five-day mission's will be *Discovery*'s tenth and the 35th in the Space Shuttle program. The Hubble Space Telescope will be released from the Remote Manipulator System (RMS) arm on orbit 19 during the second day of the mission.

January 1990 Space Shuttle manifest revised; STS-39 flight added

NASA has revised its January 1990 Space Shuttle Manifest, changing the planned launch dates for several NASA, international and Department of Defense (DOD) payloads. The manifest that was published in the March 2, 1990 issue of the Roundup will be revised to reflect these most recent changes, and will be printed in next week's issue.

Most of the changes were a result of advancing the DOD's mixed cargo flight — the Infrared Background Signature Survey/Air Force Program-675/Space Test Program/Multi-Purpose Experiment Canister (STS-51) — from January 1992 to January 1991. The mission will be renamed STS-39. The payload previously in the January 1991 slot, Tracking and Data Relay Satellite-E (STS-43), has been moved to May 1991.

STS-46, a NASA mixed cargo mission including the first flight of the NASA/Italian Space Agency's Tethered Satellite System, the European Space Agency's European Retrievable Carrier, the Evaluation of Oxygen Interaction with Materials and the Two-Phased Experiment Mounting Plate, was moved from May 1991 to September 1991. DOD's STARLAB mission, scheduled for September 1991, has been delayed to January 1992.

Other manifest changes include the addition of the Shuttle Solar Backscatter Ultra-Violet Instrument payload (SSBUV) to both the Ulysses and TDRS-E missions. SSBUV has been removed from STS-37, scheduled for November 1, 1990, aboard Atlantis, which will deploy the Gamma Ray Observatory into orbit. Also, the Space Radar Laboratory series of missions has been delayed about one year.

Additional changes to the Mixed Fleet Manifest beyond the January 1992 launch of STARLAB are under review. A new manifest is scheduled to be issued in June.

New technical, electronic services now available

A new NASAMAIL bulletin board service, TECHCHECK, has been initiated by the Technology Utilization Office (TU). JSC employees may access the service by typing CHECK TECHCHECK at the COMMAND? prompt.

TECHCHECK offers information on technology transfer conferences nationwide, as well as specific information on transfer activities at the center. The bulletin board will also spotlight new technology available for use on JSC projects.

In addition, NASA news releases and other information are now available electronically on CompuServe and GEnie, the General Electric Network for Information Exchange. The Dialcom electronic service that formerly provided this information, has been discontinued.

For information on TECHCHECK, contact Dean Glenn, TU Officer, x33809. For CompuServ information call 1-800-848-8199 and ask for representative 176; call 1-800-638-9636 to contact a GEnie representative.

Space Science volunteers Wanted

Volunteer opportunities for space science and engineering professionals abound through Houston's Museum of Natural Science (HMNS).

Challenger Center mission simulation staffers-volunteer one Sunday a month to be a flight director or mission commander during the center's interactive mission simulations.

HMNS Challenger Facility Lunar Outpost consultants-assist in assuring the authenticity of HMNS lunar outpost components.

Space Station consultants-The Challenger Center under formation at George Observatory in Brazos Bend State Park needs technical consultants, including retired space professionals, to advise on authenticity of a space station mock-up.

George Observatory greeters and assistants-help novices find major stellar features in the new George Observatory in Brazos Bend State Park during weekend star gazing nights.

Interested JSC employees may contact Dr. Carolyn Sumners, 639-4632, at the Museum for more information.

Space News
Roundup

The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Swap Shop deadline is every Friday, two weeks before the desired date of publication.

Editor ..... Kelly Humphries
Associate Editor .... Linda Copley

Survey results compared

(Continued from Page 1)
favorable as well. Many organizations work very hard to get where we are today."

"Organization culture," explains Parker, "is a set of shared beliefs about the unwritten rules of an organization and how it operates, 'the way we do things around here.'"

"American business and government organizations have taken an increased interest in organization culture for the past several years," Parker said. The emerging data shows a definite link between the culture and effectiveness of an organization.

"To increase the effectiveness of your organization by changing the culture, it helps to first understand the existing culture, it's strengths and weaknesses," Parker said.

The biggest positive messages or "strengths" associated with working for JSC as indicated in the survey, in addition to those listed above, were: the feeling the center highly values its image to the public, is committed to high quality work and the value of excellence, and believes that mission accomplishment is the highest priority of center management.

The survey further revealed that employees felt having a mentor is important for their career advancement.

Employees also believe, according to the survey results, that JSC places a high priority on work safety, and believed their immediate organizations had cooperative and effective working relationships with other JSC organizations.

"People's pride in working at JSC, their level of commitment to high quality work, and their satisfaction with both their job and the center are truly strengths of our culture," Lister said. "We intend to build on these strengths as we work issues identified by the 1989 survey; decision-making, career development, cooperation and teamwork, and workload. Based on employee feedback and recommendations from the focus groups, we are now finalizing specific action plans. These plans will be communicated shortly."

Parker indicates understanding the strengths of that culture improves effectiveness, by allowing the tailoring of new approaches and strategies to draw on strengths and strongly held beliefs. "You reinforce the strengths as you introduce and manage changes," he said.